UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
FEARER, MARK D

ART UNIT	PAPER NUMBER
2443	

NOTIFICATION DATE	DELIVERY MODE
05/14/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2009*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7,9-11 and 13-17* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-4,7,9-11 and 13-17* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All   b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1. Applicant's Amendment filed 16 February 2009 is acknowledged.

2. Claims 1, 4, 7, and 9-10 have been amended.

3. Claims 5-6, 8, and 12 are cancelled.

4. Claims 1-4, 7, 9-11, and 13-17 are still pending in the present application.

5. This action is made FINAL.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

> 1.   Determining the scope and contents of the prior art.
> 2.   Ascertaining the differences between the prior art and the claims at issue.
> 3.   Resolving the level of ordinary skill in the pertinent art.
> 4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

7.   Claims 1-3, 7, 9-10 and 13-17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Sawada et al. (US 6907470 B2) in view of Ball et al. (US

20030046390 A1) and in further view of Weil et al. (US 20020093954 A1).

Consider claim 1. Sawada et al. discloses a communication apparatus for routing

or discarding a packet sent from a user terminal, comprising: a plurality of ports; a

plurality of link up/down detection logic units, each link up/down detection logic unit

associated with a port and configured to detect a change in the state of a link

associated with the port (column 3 lines 8-12).

However, Sawada et al. fails to discloses a configuration validation checker

coupled to each of the link up/down detection logic units, wherein the configuration

validation checker receives topology information from an entity external to the switch

and prevents said topology information from being used by the switch for routing

purposes if the topology information fails to comport with local topology information

stored in the switch.

Ball et al. discloses methods for construction multi-layer topological models of

computer networks comprising a configuration validation checker coupled to each of the

link up/down detection logic units (paragraphs 0020 and 0026); wherein the

configuration validation checker receives topology information from an entity external to

the switch and prevents said topology information from being used by the switch for

routing purposes if the topology information fails to comport with local topology

information stored in the switch (("A virtual LAN (VLAN) is a logical Layer 2 broadcast

domain, which enables a logical segmentation of the network without changing the

physical connections. A VLAN enabled switch segments the connected stations into

logically defined groups. Broadcast traffic from a server or an end-stations in a particular

VLAN is replicated only on those ports connected to end-stations belonging to that

VLAN. The broadcast traffic is blocked from ports with no end-points belonging to that

VLAN, creating a similar type of broadcast containment that routers provide. VLANs

may also be defined between different domains connected by a router. In this case, the

router passes network traffic from one domain to the other (as done without defining a

VLAN), and passes network traffic from one VLAN to the other. The router also passes

network traffic between VLANs that are in the same domain because VLANs do not

normally share user information. The router is configured as a member of all VLANs.")

Ball et al., paragraph 0020).

Therefore, it would have been obvious for a person of ordinary skill in the art at

the time the invention was made to incorporate methods for construction multi-layer

topological models of computer networks comprising a configuration validation checker

coupled to each of the link up/down detection logic units wherein the configuration

validation checker receives topology information from an entity external to the switch

and prevents said topology information from being used by the switch for routing

purposes if the topology information fails to comport with local topology information

stored in the switch as taught by Ball et al. with a communication apparatus for routing

or discarding a packet sent from a user terminal, comprising: a plurality of ports; a

plurality of link up/down detection logic units, each link up/down detection logic unit associated with a port and configured to detect a change in the state of a link associated with the port as taught by Sawada et al. for the purpose of managing network topology changes.

However, Sawada et al., as modified by Ball et al., fails to disclose a configuration validation checker that causes a switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change.

Weil et al. discloses a method for failure protection in communication networks wherein a configuration validation checker causes a switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change ((When a router detects a change in the network topology, e.g. a link failure, node failure or an addition to the network, this information is communicated to its L3 peers within the routing domain. In link state routing protocols, such as OSPF and Integrated IS-IS, the information is typically carried in link state advertisements (LSAs) that are flooded` through the network (step 504). The information is used to create within the router a link state database (LSDB) which models the topology of the network in the routing domain. The flooding mechanism ensures that every node in the network is reached and that the same information is not sent over the same interface more than once. LSA's might be sent in a situation where the network topology is changing and they are processed in software. For this reason the time from the instant at which the first LSA resulting from a topology change is sent out until it reaches the last node might be in the order of a few seconds. However, this time delay does not pose a significant

disadvantage as the network traffic is being maintained on the recovery paths during this time period.) paragraphs 0061-0062).

Therefore, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to incorporate a method for failure protection in communication networks wherein a configuration validation checker causes a switch to change its routing behavior with regard to a port for which a link up/down detection unit has detected a state change as taught by Weil et al. with methods for construction multi-layer topological models of computer networks comprising a configuration validation checker coupled to each of the link up/down detection logic units and a communication apparatus for routing or discarding a packet sent from a user terminal, comprising: a plurality of ports; a plurality of link up/down detection logic units wherein the configuration validation checker receives topology information from an entity external to the switch and prevents said topology information from being used by the switch for routing purposes if the topology information fails to comport with local topology information stored in the switch, each link up/down detection logic unit associated with a port and configured to detect a change in the state of a link associated with the port as taught by Sawada et al., as modified by Ball et al., for the purpose of network configuration validation.

Consider claim 2, as applied to claim 1. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the switch wherein each link up/down detection logic unit informs the configuration validation checker when a link to an associated port

becomes non-functional, and the configuration validation checker responds by

discarding all packets (Sawada et al., column 1 lines 65-67 and column 2 lines 1-21,

and Weil et al., paragraph 0010).

        Consider claim 3, as applied to claim 1. Sawada et al., as modified by Ball et al.

and Weil et al., further discloses the switch wherein each link up/down detection logic

unit informs the configuration validation checker when a link to an associated port

becomes non-functional, and the configuration validation checker responds by

discarding all packets destined to that link (Sawada et al., column 11 lines 33-48).

        Consider claim 7. Sawada et al., as modified by Ball et al. and Weil et al.,

discloses a switch, comprising: a plurality of ports; a plurality of link up/down detection

logic units, each link up/down detection logic unit (Ball et al., paragraphs 0020 and

0026) associated with a port and adapted to detect a change in the state of a link

associated with the port (Sawada et al., column 3 lines 8-12); and means for causing

the switch to change its routing behavior with regard to a port for which a link up/down

detection unit has detected a state change (Weil et al., paragraphs 0061-0062); and

means for receiving an indication from the link up/down detection logic units that a link

to an associated port has become non-functional and means for ceasing routing of all

packets (("When a router detects a change in the network topology, e.g. a link failure,

node failure or an addition to the network, this information is communicated to its L3

peers within the routing domain. In link state routing protocols, such as OSPF and

Integrated IS-IS, the information is typically carried in link state advertisements (LSAs)

that are flooded` through the network (step 504). The information is used to create

within the router a link state database (LSDB) which models the topology of the network

in the routing domain. The flooding mechanism ensures that every node in the network

is reached and that the same information is not sent over the same interface more than

once.") Weil et al., paragraph 0061).

Consider claim 9, as applied to claim 7. Sawada et al., as modified by Ball et al.

and Weil et al., further discloses the switch including a means for receiving an indication

from the link up/down detection logic units that a link to an associated port has become

non-functional and a means for ceasing routing of all packets destined to that link

(Sawada et al., column 11 lines 33-48).

Consider claim 10. Sawada et al., as modified by Ball et al. and Weil et al.,

discloses a network, comprising: a plurality of switches coupled together; at least one

end node coupled to at least one switch; wherein at least one switch includes: a link

up/down detection logic (Ball et al., paragraphs 0020 and 0026) unit associated with a

port and configured to detect a change in the state of the link (Sawada et al., column 3

lines 8-12); and a configuration validation checker coupled to the link up/down detection

logic unit, said configuration validation checker causes the switch to change its routing

behavior with regard to the port if the link up/down detection unit has detected a state

change (Weil et al., paragraphs 0061-0062); wherein the link up/down detection logic

informs the configuration validation checker when said link becomes non-functional, and

the configuration validation checker responds by rejecting all packets destined to said

link (Weil et al. paragraphs 0057 and 0061).

Consider claim 13. Sawada et al., as modified by Ball et al. and Weil et al.,

discloses a method performed by a switch contained in a system, comprising: the switch

monitoring a port for a link down event or a link up event, said link down event indicative

of a link from the switch to an entity becoming non-functional and said link up event

indicative of a newly established link from the switch to said entity; the switch detecting

a link down event associated with said switch or a link up event associated with said

switch receiving a packet into said switch (Sawada et al., column 3 lines 8-12); the

switch determining if said packet is to be routed out through said port associated with

the detected link down event or link up event (Ball et al., paragraph 0026); if the switch

determines that the packet is to be routed out through said port associated with a

detected link down event, the switch discarding the packet and if the switch determines

that the packet is to be routed out through said port associated with a detected link up

event, the switch routing the packet through said port (Weil et al., paragraphs 0061-

0062).

Consider claim 14, as applied to claim 13. Sawada et al., as modified by Ball et

al. and Weil et al., further discloses the method including if the switch determines that

the packet is to be routed out through said port associated with a detected link down

event, discarding all packets received by the switch (Sawada et al., column 11 lines 33-48).

Consider claim 15, as applied to claim 13. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including requesting the entity to provide a unique identifier to the switch (Ball et al., paragraph 0075).

Consider claim 16, as applied to claim 15. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including the switch receiving a unique identifier from the entity, comparing the unique identifier received from the entity to state information contained in the switch and, if the unique identifier from the entity does not match a value in the state information, discarding a packet destined for the entity (("When a node receives new topology information it updates its LSDB (link state database) and starts the process of recalculating the forwarding table (step 505). To reduce the computational load, a router may choose to postpone recalculation of the forwarding table until it receives a specified number of updates (typically more than one), or if no more updates are received after a specified timeout. After the LSAs (link state advertisements) resulting from a change are fully flooded, the LSDB is the same at every node in the network, but the resulting forwarding table is unique to the node.") Weil et al., paragraph 0065).

Consider claim 17, as applied to claim 16. Sawada et al., as modified by Ball et al. and Weil et al., further discloses the method including if the unique identifier from the entity matches a value in the state information, permitting packets destined for the entity to be routed from the switch to the entity (Ball et al. paragraphs 0062 and 0113).

8.   Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada et al. (US 6907470 B2) in view of Ball et al. (US 20030046390 A1) in further view of Weil et al. (US 20020093954 A1) and in further view of Kao et al. (US 7054951 B1).

Consider claim 4, as applied to claim 1. Sawada et al., as modified by Ball et al. and Weil et al., discloses a configuration validation checker responding to a non-functional link. However, Sawada et al., as modified by Ball et al. and Weil et al., fails to disclose a configuration validation checker responding to a non-functional link notification by: receiving an identifier value from an entity coupled to the switch via the functional link; comparing the identifier value received from the entity with topology information contained in the switch; and if the identifier value matches a value in the topology information, permitting the switch to route packets over the functional link; or if the identifier value does not match a value in the topology information, discarding all packets targeting the functional link. Kao et al. discloses plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was

generated by the receiving node and, if so, then the topology information is evaluated

and stored/updated in the topology table and, if not, then a check is made to determine

if the ring identifier associated with the topology discovery packet matches the ring

identifier associated with the ring on which the packet was received (("When a topology

discovery packet is received (376), a check is made to determine if the topology packet

was generated by the receiving node (378). If so, then the topology information is

evaluated (380) and stored/updated in the topology table as appropriate (382). More

specifically, entries in the topology table can be added or entries updated based on the

received topology information. If the topology packet was not generated by the receiving

node, then a check is made to determine if the ring identifier for the node has local

significance only (384). If not, then a check is made to determine if the ring identifier

associated with the topology discovery packet matches the ring identifier associated

with the ring on which the packet was received (386). If no match arises, then the

packet is forwarded without appending any information relating to the receiving node to

the topology discovery packet (388) and thereafter the process can continue at step

376. If the ring identifier matches, then the address for the receiving node is appended

to the topology packet, and as appropriate, the ring identifier associated with the ring on

which the packet was received is appended to the topology packet as well (390).

Thereafter, the packet is forwarded at step 388.") column 13 lines 51-67 and column 14

lines 1-5) and packets are discarded if an address does not match an identifier (column

12 lines 27-39).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate plug and play node addition in a dual ring topology network using locally significant ring identifiers for determining routing decisions wherein a check is made to determine if the topology packet was generated by the receiving node and, if so, then the topology information is evaluated and stored/updated in the topology table and, if not, then a check is made to determine if the ring identifier associated with the topology discovery packet matches the ring identifier associated with the ring on which the packet was received and packets are discarded if an address does not match an identifier as taught by Kao et al. with a configuration validation checker responding to a non-functional link as taught by Sawada et al., as modified by Ball et al. and Weil et al., for the purpose of effectively routing packets.

Consider claim 11, as applied to claim 10. Sawada et al., as modified by Ball et al., Weil et al. and Kao et al., further discloses the network wherein the link up/down detection logic unit informs the configuration validation checker when the link becomes non-functional, and the configuration validation checker responds by rejecting all packets (Sawada et al., column 1 lines 65-67 and column 2 lines 1-21).

Response to Arguments

9.   Applicant's arguments filed 16 February 2009 with respect to claims 1, 7, and 10 have been considered but are not persuasive.

Applicant argues that Sawada et al., as modified by Ball et al. and Weil et al.,

fails to teach a system or method wherein the configuration validation checker receives

topology information from an entity external to the switch and prevents said topology

information from being used by the switch for routing purposes if the topology

information fails to comport with local topology information stored in the switch.

Examiner respectfully disagrees. Sawada et al., as modified by Ball et al. and

Weil et al., teaches a system and method wherein the configuration validation checker

receives topology information from an entity external to the switch and prevents said

topology information from being used by the switch for routing purposes if the topology

information fails to comport with local topology information stored in the switch (("A

virtual LAN (VLAN) is a logical Layer 2 broadcast domain, which enables a logical

segmentation of the network without changing the physical connections. A VLAN

enabled switch segments the connected stations into logically defined groups.

Broadcast traffic from a server or an end-stations in a particular VLAN is replicated only

on those ports connected to end-stations belonging to that VLAN. The broadcast traffic

is blocked from ports with no end-points belonging to that VLAN, creating a similar type

of broadcast containment that routers provide. VLANs may also be defined between

different domains connected by a router. In this case, the router passes network traffic

from one domain to the other (as done without defining a VLAN), and passes network

traffic from one VLAN to the other. The router also passes network traffic between

VLANs that are in the same domain because VLANs do not normally share user

information. The router is configured as a member of all VLANs.") Ball et al., paragraph

0020).

Applicant argues that Sawada et al., as modified by Ball et al. and Weil et al.,

fails to teach a system or method comprising means for receiving an indication from the

link up/down detection logic units that a link to an associated port has become non-

functional and means for ceasing routing of all packets.

Examiner respectfully disagrees. Sawada et al., as modified by Ball et al. and

Weil et al., teaches a means for receiving an indication from the link up/down detection

logic units that a link to an associated port has become non-functional and means for

ceasing routing of all packets (("When a router detects a change in the network

topology, e.g. a link failure, node failure or an addition to the network, this information is

communicated to its L3 peers within the routing domain. In link state routing protocols,

such as OSPF and Integrated IS-IS, the information is typically carried in link state

advertisements (LSAs) that are flooded` through the network (step 504). The

information is used to create within the router a link state database (LSDB) which

models the topology of the network in the routing domain. The flooding mechanism

ensures that every node in the network is reached and that the same information is not

sent over the same interface more than once.") Weil et al., paragraph 0061).

Conclusion

10.   THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be faxed to (571) 273-8300 or mailed

to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Mark Fearer whose telephone number is (571) 270-

1770. The Examiner can normally be reached on Monday-Thursday from 7:30am to

5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Tonia Dollinger can be reached on (571) 272-4170. The fax phone number

for the organization where this application or proceeding is assigned is (571) 273-

8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist/customer service whose telephone

number is (571) 272-2600.

Mark Fearer
/M.D.F./
May 8, 2009

/George C Neurauter, Jr./

Primary Examiner, Art Unit 2443